DOCUMENT RESUME

ED 445 499 EF 005 782

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TITLE	Design for All Children.
PUB DATE	1999-00-00
NOTE	5p.
AVAILABLE FROM	White Hutchinson Leisure & Learning Group, 4050 Broadway, Suite 215, Kansas City, MO 64111; Tel: 816-931-1040.
PUB TYPE	Opinion Papers (120) -- Reports - Descriptive (141)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	*Classroom Design; *Cooperative Planning; *Educational Facilities Design; Elementary Secondary Education; Public Schools; *School Safety
IDENTIFIERS	*Access to Facilities

ABSTRACT

This paper examines four key elements in the designing-for-all-children concept for school environments. Designing-for-all-children designs acknowledge that children pass through differing, yet recognizable, stages of development; and that children need usable environments free from physical and social barriers. Key elements address equitable use, safety, and flexibility; and includes a description of the multi-disciplinary, cross-functional team used for design development. (GR)

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DESIGNING FOR ALL CHILDREN

By Vicki L. Stoecklin

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Children need age-appropriate and developmentally appropriate physical environments that support, promote and include child-directed and child initiated play and learning. Active, creative play and exploration is central to normal child development. The physical environment can either contribute to children's development and support learning and exploration or become a permanent impediment to the above stated goals. The design and layout of the physical environment which includes the building, interior finishes, outdoor spaces, room arrangement and selection of equipment has a profound impact on children's behavior. Quite unlike adults, children figure out how to behave in most situations through instantaneously reading the environment. Children also read the environment differently than adults, not as background but as something to interact with.

The concept of designing for all children is based upon the tenets of child development which recognizes that each child is unique and passes through a series of recognizable stages of development, which are different for each child including children with disabilities. The underlying definition of design for all children is similar in context to the definition of universal design. Designing for all children means creating environments that can be usable by all children without the need for adaptation. It also means that the environments are free from both physical and social barriers. The following list of key elements can be used by designers, architects and early childhood staff in creating environments that are inviting and functional to every child.

Equitable Use

The intent of all state and federal legislation for children with disabilities is to provide for equal and equitable access. Equal access does not mean segregating and stigmatizing any user, able-bodied or disabled. Designing for equitable use means creating a design that is functional to a wide variety of users and one that allows for socialization between all children. For example, in designing a water play element for children our company chose to create a universal design of multi-height tables that would allow for an undertable or side approach by wheelchairs of various heights, walkers of various sizes and design or standing children of various heights. Children could then self select the height and design of the table which best worked for them. This design solution also allowed for socialization to occur between all types of children who used the table, both able-bodied, those using chairs or walkers and non-disabled children of various sizes. A far less equitable approach would have been to label each side of the table by chronological age of the intended users and to then designate areas for wheelchair and/or walker access.

Equitable use means creating a design that works for all types of users and does not exclude any intended users. For example, the height of a transfer deck for a child using a wheel chair in the draft ADA Play Areas Rule is stated in a variable height measurement. Depending on what height you choose to make this transfer deck and if the adjacent stairs are going to be used by non-wheel chair using children, you may be creating a situation where the needs of the wheel chair using child are superceding the needs of the other

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children. Young children of all stages of development and older children with delayed motor development simply cannot adapt to inappropriate design. For example, if the stair next to a transfer station is too high, they just cannot use it. You can imagine the problems when access to the piece of climbing equipment creates a situation where no children can get on the equipment without assistance from an adult. This same principle can be applied to creating appropriate sinks and toilets for all children. Not only should these facilities work for the child with disabilities but it must work also for the non-disabled child as well. If sinks and toilets are too high they can't be reached and if they are too low you may be creating safety problems especially for very young or cognitively impaired children who might climb in them.

Another example of inequitable design is when the intended function of the design is lost after the adaptation is made. One piece of equipment that comes to my mind when thinking of this problem is the elevated sandtable. Sand serves as a sensory experience for children of all ages, abilities and development. As a sensory experience, sand play is best executed as it has been for probably centuries, with the child being immersed in the sand. I feel that designers and manufacturers are defeating the principle of equitable use when an equivalent solution for sandplay is the elevated sandtable. The elevated sandbox/sandtable creates a situation where now, no one can get in the sand including the non-disabled child. Anyway, at what one height would you put one elevated table to meet the needs of all children? Quickly answered, that one magical height intended to meet all children's needs simply does not exist. A more equitable design solution is to continue to use a traditional sandbox that could have added to it a transfer station for a child using a wheelchair and/or add an adapted stair for children using walkers, a child with limited sight or a child with underdeveloped motor abilities. In this manner, all children can continue to experience the sensory experience of immersed sandplay. Immediately from birth, children reply on touching, feeling and using their senses to provide information. We should create environments that are rich for exploration though all the senses: touch, taste, sight, sound and smell.

Designing for all children means creating spaces that are free from social barriers. Spaces, indoors and outdoors, must allow for positive interpersonal interaction and socialization between children with different abilities and of both genders. Spaces must be available for small groups, solitude, quiet play, large groups and active play. Appropriate space will create opportunities for the development of self-confidence and social skills.

Flexibility and Independence

For any age child, the environment should foster independence. A developmental task of childhood is to move from total dependence on adults to a more mature independent stage. Independence can best be achieved by creating environments that can be used by children with a wide range of individual preferences and abilities. When designing an interactive cooking station, we created a design of multi-height movable counter tops and multi-height stools that could both be adjusted to meet the diverse needs of a group of children including those with disabilities.

Often times what happens in some settings over time is that the adults and sometimes the children learn to adapt to poor design. I remember observing this phenonenom in an early childhood inclusionary setting that had children with diverse abilities and disabilities enrolled. One of the four pieces of outdoor playground equipment had been adapted for children with disabilities. As required by the current draft ADA Play Areas Rule, this particular piece of equipment only had a transfer deck for children who were using wheelchairs. However, this program did not have any children enrolled who used wheel chairs but it had a high number of children enrolled who used a variety of walkers. I watched in amazement as teachers were forced to take each child out of their walkers and carry them up the stairs. Not only does this type of poor design foster dependence on the child's part but it created a situation very unsafe for the teachers and children. As a team, we chose to remedy the situation by creating a master plan for the complete renovation of this outdoor play space to make it better meet the needs of all children. Data was collected for this design project through extensive observations of children and interviews with staff including physical therapists. In addition to the transfer stations, we added a series of steps and ramps which could be used by children in either walkers or wheelchairs.

Designing for all children means understanding that children come in a variety of sizes which is sometimes not directly related to chronological age. Our team makes use of a variety of anthropometric charts which are then adjusted based on the children's motor abilities and how the design will be used. Many children with disabilities do not follow typical growth patterns.

Includes Safety

Creating designs for all children must include adherence to a variety of mandatory and voluntary safety guidelines not only for children but for staff as well. The design must support active experimentation and risk-taking without being unsafe for children. The physical environment and equipment must be arranged to minimize hazards and errors. It must also support the role of staff and parents in assisting in the play and learning environment. The design of outdoor playground equipment is tightly regulated and controlled by several safety guidelines, however there are no standards for similar types of equipment and design used in the indoor environment. I could list numerous examples of unsafe buildings, playgrounds, furniture and equipment I have observed in day care centers, children's museums, public schools and children's play spaces. Dangers include inadequate or no shock absorbing fall zones which could prove lethal to a child, designs which encourage inappropriate behaviors, materials and plants which are toxic to children, and strangulation and body entrapment hazards which can also be potentially lethal.

A Team Effort

The process of envisioning and designing environments that support competence, independence, exploration and inclusion is far more complex that following a list of suggested guidelines. The product can only be as good as the process that creates it and the expertise of the design participants.

Designing for all children requires a multi-disciplinary, cross-functional design team from the beginning. The team should meet in a concurrent format where experts who design the facility and those who operate it create the design program, goals and requirements together at the same table. Program goals, building use, children's needs, staff needs and parents need drive the concurrent design process. Other issues that need to be examined up front in the process are furniture, equipment and operating costs prior to designing the physical space. Everything impacts everything.

The design team needs to be structured and sensitive to staff, parental and community input. The team should have members with specialized expertise in early childhood education, special education, child development, children's environmental design, architecture, landscape architecture, interior design, horticulture, acoustics for children, equipment selection, universal design for children and cultural competency. A team can bring the added benefits of a broad view and collaborative creativity.

In summary, designing for all children asks us to more closely examine our values and beliefs and to learn to collaborate with others whose expertise may be different than our own. As much as we may be different, we are all alike in many ways. Designing for all children finds a way to support and encourage each child's abilities, similarities, and uniqueness.

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